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ABSTRACT

This paper presents an overview of the effectiveness of writing and cooperative learning in developing thinking skills in technical theatre education. The paper first offers a statement of purpose and an outline of a survey of university technical theater personnel and design students in an introduction. The four parts of the paper then discuss: (1) a designer's working definition of thinking; (2) the designer's need for effective language skills; (3) the use of writing in developing the design concept; and (4) cooperative learning in the design workshop. The paper concludes that the described methods of using language to develop thinking skills of design students: teaches students to use their minds well; develops the intellectual and imaginative powers and competencies that students need; transforms the role of the teacher into a coach provoking students to learn; and presents a nonthreatening atmosphere in which achievement, truth, and decency are expected and provided. Twenty-four references, and the results of the survey are attached. (RS)

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The Necessity of Using Language In Order to Develop Thinking Skills Among Stage Lighting and Scenic Design Students

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The Necessity of Using Language In Order to Develop Thinking Skills Among Stage Lighting and Scenic Design Students

Introduction

Within the past year I have become a staunch advocate of using the writing process and cooperative learning as teaching tools across the curriculum at all grade levels including post secondary. It is my belief that these two concepts are the major impetus in developing creative and critical thinking skills. Furthermore, I believe that learning does not occur unless the mind is actively engaged in thinking, which--in turn--occurs only when students are presented with opportunities to express, evaluate, and refine their own individual responses and ideas.

My advocacy stems from my own experience in a lighting design class taught by Mr. Felipe E. Macias, Associate Professor of Theatre at Eastern New Mexico University. This particular class was focused on one primary goal which was to develop students' abilities to conceptualize appropriate light plots for specified plays. By appropriate light plots I mean that the actual design must have been related to the text of the play in a manner that could be justified. Probst explains this very concept when he comments on the response to and the analysis of literature: "...there are no absolutes; the poem [or play] is made by each reader individually," however, "The rejection of absolutes does not mean that every-

thing is a matter of opinion...intelligent reflection upon one's responses leads to understanding..." (35).

The strategies employed by Mr. Macias in an attempt to provoke this reflection, or thinking, among his students were mainly writing and cooperative learning. Through writing, the students were expected to express their responses to the plot and theme of the play; to justify their design concepts in relation to the theme and physical requirements of the play; and to verbalize the actual design concept in regards to the particular instruments used, their exact placement, and--furthermore--why these instruments and locations were chosen.

The cooperative learning process was implemented through group discussion, think-pair-share, and a group collaborative exercise. Group discussions among the design students concentrated on sharing individual responses and general design ideas which provided individuals with the opportunity to confirm, refine, or revise their own ideas. For two extensive design projects, each design student was paired with two or three students from the directing class. These think-pair-share groups were responsible for reaching a consensus for a design based on their individual responses to the same play. For the first such exercise, all designers and directors were assigned the same play and a predetermined ground plan. This exercise culminated in a collaborative oral presentation by the designer and director in which they explained the final design using a model of the set for the play as a visual prop.

Each member of the pair was still held responsible for his respective paperwork. The second exercise allowed the director to choose a ten-minute scene from any play as the text upon which the design would be based; and, instead of an oral presentation, this exercise required the actual performance of each scene. During the performances of these scenes, the respective designer was responsible for operating the light board. This exercise required an extensive collaborative effort, not only between designers and directors, but also among the designers who had to devise a method for running lights for these scenes which were presented in a series of nine on each of two consecutive nights. Due to the apparent success of these exercises, I believe that writing and cooperative learning are effective strategies in the teaching of lighting design and, therefore, they would also be equally effective in the teaching of set design.

Unfortunately, I have been unable to find any previous research concerning the use of writing and cooperative learning in the fields of stage lighting and set design. Since the concepts of writing and cooperative learning are applicable across the curriculum, however, I have drawn from expert opinions on the use of these concepts as factors in developing thinking skills, and I have supplemented this information with Darwin Reid Payne's philosophy of design. Due to the vast amounts of available information on the writing process and cooperative learning, I have depended primarily upon journal articles to provide an adequate survey of this information.

I have also used texts which I am currently studying for additional references. I also attempted my own research into my area of focus by requesting responses from eleven university technical directors, 100 design students, eight professional designers, and one educational director of a community theatrical program. The final survey results, which appear at the end of this paper, are reflective of the responses that I received from a total of eight university technical directors, forty-four design students, and one professional designer. The low number of student responses is characteristic of design classes due to small enrollments and the fact that design classes are typically taught only during the spring (this trend was reported by several of the directors). My survey was administered in the fall by which time many students who had taken the classes had graduated and, therefore, could not be contacted for participation. At any rate, I believe that the responses received are an adequate indicator of the concepts of writing and cooperative learning in the area of design.

In short, it is my intention to present an overview of the effectiveness of writing and cooperative learning in developing thinking skills in technical theatre education. Moreover, I hope to create an acknowledgment and appreciation of designers as true intellectuals.

I

A Designer's Working Definition of Thinking

Thinking can be defined as the process of forming an image, idea, plan, or opinion in the mind and also reflecting upon those images, ideas, and opinions. Although thinking skills are generally categorized into critical thinking, creative thinking, problem solving, and decision making, these

skills complement each other in the total thinking process. This suggests that a broader definition of thinking be considered (Borchardt 3). Since each of these skills works in conjunction to encourage students to become actively engaged in their own learning, thinking may be best defined as the overall process of actively engaging the mind to form thoughts; examine, confirm, or revise these thoughts; to effectively communicate these thoughts; and to carry out any actions that are required in relation to these thoughts. Furthermore, it might be said that creative and critical thinking are the skills that lead to the ability to solve problems by making decisions.

In general, creative and critical thinking may be thought of as inseparable skills which form the foundation of all learning. Borchardt expounds upon this link between creative and critical thinking when he states that "...the creative and critical sides of the brain...are in constant communication sending messages back and forth..." (7). This is an important concept to remember when discussing the development of design students' thinking skills. For instance, when speaking of encouraging the development of either the creative thinking skills or the critical thinking skills, it is crucial to remember that the two are simultaneously benefiting and developing. (Unfortunately, sources dealing exclusively with design refer to the thought process as creative thinking, or creativity, while those sources dealing exclusively with writing and cooperative learning primarily refer to the thought

process as critical thinking, or reasoning. Considering the two to be inseparable should aid in avoiding confusion.)

Since creative thinking lies at the foundation of design students' learning processes, it is relevant that a moment be taken to express the importance of developing the students' creativity before examining the means by which it is encouraged to mature. Borchardt notes that creativity is not exclusive to the arts but it also exists in science, business, and other professions. Further, he states that creative people achieve through effort which includes the willingness to accept new ideas in the problem solving and decision making process. "Creativity," he states, "requires...the application of talents virtually everyone has" (Ruggerio in Borchardt 13). While it is a commonly accepted belief that hands-on experience is the most important aspect of any area of study, this practice leaves students with only a superficial understanding of the subject matter since they were not provided the opportunity to develop the important thinking skills that would empower them in situations that require problem solving and decision making. This is reminiscent of the adage "monkey see, monkey do." In other words:

> Emphasis on doing does not always develop a conscious awareness of thinking skills. Without conscious awareness students can be left with improved intuitive skills but deficient knowledge of other necessary and related thinking processes. Conscious development of performance

> [and design] skills is a necessary phase in progressing toward the goal of unconscious use of the skills. (Borchardt 13)

Borchardt's explanation suggests that the student who possesses a balance of thinking skills and mechanical task skills will be much more knowledgeable and efficient in the role of performer, or--in this case--designer. In response to the administered survey, Macias summarized Borchardt's concept in relation to designers: "If we think of design as a God given talent, it seems to me we should develop the students' creativity while allowing the understanding of balance, color, texture, etc. to follow suit." This approach encourages higher-level thinking skills that go beyond simple linear intuitive thinking. Practising these higher-level skills encourages students to make connections and it also develops metacognition (Bland and Koppel 59). The use of language in order to "articulate [these] connections" is an invaluable skill for the designer (Bruner in Ferguson 274); the following section will examine this concept.

II

The Designer's Need for Effective Language Skills

Beuchler describes the language skills of his advanced writers as being "...the ability to think about one's own thinking and to articulate with precision one's thoughts about one's thoughts..." (12). This idea is expanded by Tierney who quotes Mackie's belief that "'...to be literate is to... utilize reading, writing, and speaking skills so that our

understanding of the world is progressively enlarged'" (Mackie in Tierney, et al. 137). Thus, language is the key to understanding one's own thoughts, to learning new concepts, and to communicating one's thoughts to others.

Morgan examines the results of a 1984 project of the Australian National Association for Drama in Education which identifies the types of language used in classrooms. The findings indicated that two-thirds of the language used in the regular classroom was strictly informational which serves to dispense concrete information to students. The remainder of the language used in the regular classroom was found to be interactional which students use in an attempt to infer meaning from this information. Unfortunately, some educators are content with and even promote this undemanding arrangement, but it does not provide the students an opportunity to participate in the learning process. By contrast, the findings of the NADIE project indicated that the types of language used in the drama classroom is of a vastly different balance: 41% informational, 32% interactional, and 27% expressive. This shift of balance is due to the existential nature of drama that stresses individual expression. This very nature encourages the use of language to communicate this individual expression (34-5).

The effective use of language is an incredibly valuable asset to the designer in order to avoid confusion and eventual frustration among the production crew. It is the duty of the designer to transform his vision into a reality; but

in this transformation he must incorporate the visions of the director and the playwright. There have undoubtedly been many instances in which directors and designers have misunderstood each other's intentions due to ineffective communication (Payne 116). In essence:

> We are stuck with certain basic forms of communication. It is imperative, therefore, that we understand as clearly as possible the nature of those forms we do possess...Most important of all, we must learn to be more accurate in the kinds of language we employ to inform others of those concepts we come to hold. (Payne 110)

Payne expands upon his own concept of the value of effective communication by reiterating Richard Leakey's belief that humans have always had the potential to communicate through a combination of words and images. Furthermore, "'...creating and mentally manipulating images is a way of exploring your environment...and the sharper those images are in your head, the more effective you will be in exploiting that environment'" (Leakey in Payne 111).

Words are the most important tool a designer can use to sharpen and manipulate these images and to transfer these images to someone else's mind. Moreover, the designer's special vision which encompasses all the arts can provide a unique vision that neither the director nor the playwright has envisioned (Payne xvii) Charlie Caldwell, Associate Artistic Director and Head of Design at the Alabama Shakespeare

Festival, also expressed this same sentiment concerning the designer's ability to influence a production:

> One of the interesting aspects of the work is that the vision, which ultimately informs the plays, does not always come from the director, as one might expect. Frequently, it will come from one of the designers. It is then adopted by the group and then forms the particular aesthetic for the project. (2)

The potential for such influence demonstrates the need for designers to possess effective communication skills. One might argue that a rendering or model of the designer's vision would be sufficient for communicating that vision to others; but if the designer is unable to verbally justify aspects of the design, then its impact is lost on those who have a different vision which they support with their own reasoning.

Generally, Payne feels that student designers have difficulty in conveying their responses to the play which they are studying. They also tend to be very vague when describing their feelings about mood and atmosphere. For these reasons, they overlook important elements in the script that they would have inferred if their communication skills were more developed. The effective use of language in creating images is beneficial to the entire production team, but it is most beneficial to the individual designer because "...it helps him recognize what he is seeking when he does

begin to search for objective correlatives of those abstract impressions and feelings" (Payne 116-7).

It is a very frustrating experience to be unable to convey one's feelings about the mood or atmosphere of a play to others. It is equally frustrating not to understand the intent that someone else is trying to convey. Many of these situations begin and end with "I know what I mean, but I don't know how to say it." The valuable insight of a different perspective may have been lost due to the lack of effective communication skills. The value of writing in order to develop these communication skills cannot be overlooked. Steven Williams, a graduate student in technical theatre design at Indiana University, responded to the survey with his belief that "The process of placing your ideas on paper is as important as the design itself. The design concept paper is useful in keeping yourself organized as well as passing your conceptual idea on to other production members."

An additional bonus that is derived from the articulation of ideas is that the potential for learning is increased. Two methods which provide ample opportunity for the articulation of design concepts are writing and cooperative learning. Sections three and four will discuss the principles of these two methods.

FORESIGHT

No man is the lord of any thing
Till he communicate his parts to
others,
Nor doth he of himself know them
for aught
Till he behold them formed in the
applause
Where they are extended, which,
like an arch, reverberates
The voice again; or like a gate of steel,
Fronting the sun, receives and ren-
ders back
His figure and his heart. (Shakespeare in Emerson 92)

III

The Use of Writing in Developing the Design Concept

Writing is an effective teaching tool because it is a way to make "invisible thought visible" (Bratton 62). Through writing, students can articulate their thoughts and ideas which allows them access to examining these thoughts and ideas concretely in order to infer real meaning and understanding. Consequently, writing is more than a means of communication--it is a "thinking tool" which prompts students to "...explore their own thinking..." as they "...priortize, classify,elaborate, and connect ideas" (Bland and Koppel 59-60). Since writing encourages students to become actively engaged in their own learning through expression and examination of

their own thoughts and ideas, it is logical to assume that a student can be taught how to learn by using the writing process. In other words, "...thinking can be taught through writing in all subject areas at all grade levels...it [writing] can be the catalyst for intellectual achievement for all students" (Bratton 62). By the same token, Romano views writing as a tool that compels students to engage in "deep, sustained thinking":

> Although writing is certainly useful for revealing information learned, it is even more useful for learning information. Students who habitually use their personal language for learning possess a most powerful educational tool...to discover, create, and explore their thinking, to dig up prior knowledge, to cultivate intellectual independence, to conjecture about possibilities, to struggle with difficult concepts, and to engage their imagination as an ally in learning...Writing for such reasons makes us use language, and using language makes us think. (34)

The imagination has been described by Buechler as "...the prime agent of the human perception..." which enables one to reason thereby providing meaning. Imagination, therefore, is the underlying impetus "...in the slow blooming of an idea literally taking shape," however, this idea is only a vague notion until it is expressed through writing. The conception of an idea is the process of a thought "...being

given shape by a mind which may intuit the shape of its idea but which can make that idea clear to others and to herself only through the process of writing and rewriting..." (10-11). Thus, it may be inferred that writing will provide a sound base of conscious reasoning that will support the intuitive vision of the designer: the vague notion is transformed into a reality.

In addition to shaping preconceived ideas, writing also leads to the element of discovery that reveals new insights and conclusions to the writer. Romano views this process of discovery as "...the aspect of writing that comes closest to magic" (18). Writers begin with a vague notion and then begin to create generalizations that lead to realizations of facts that were previously unknown to them. In other words, writing is a generative force in which "Words call up words, ideas call up more ideas. A momentum of language and thinking develops and one learns to nurture it by keeping the pen moving" (Elbow in Romano 18).

This "magic," or generative force, is brought about by what may be called the students' personal dialogues with the text and with themselves. Like creative and critical thinking, dialogue with the text and with the self are inseparable because examination of the ideas which the text presents leads one to examine personal beliefs in regards to those ideas and, consequently, to make connections. Dialogue with the text and the self is, therefore, a deep examination of one's initial response, or interpretation, of the text.

Individuals acquire their own unique interpretations of a text. These "...variations are inevitable and legitimate"; yet, students still have a responsibility to the author's intent (Probst 14). Through dialogue, students may find that their initial responses were "'...confused or impoverished, and he may then be stimulated to call forth from the text a better poem [or interpretation]'" (Rosenblatt in Probst 15). On the contrary, students may find that the dialogue confirms their intital responses and prompts further development of their own beliefs and ideas. Consequently, dialogue with the text and with the self acts as a guide in the development of rational ideas. In other words:

> ...exchange with the text can become for the reader [or designer] a process of self creation. The entire process--responding, correcting errors, searching for the sources of the response, speculating about the author's intent, and weighing the author's values and ideas against one's own--culminates in a sharpened, heightened sense of self. Some part of the reader's [or designer's] conception of the world is either confirmed, modified, or refuted, and that changes the reader [or concept]. (Probst 21)

The concept of dialogue with the text and with the self is an important aspect in the development of designers' thinking skills. It is the responsibility of designers

to "...gain an understanding of 1) how the playwright viewed the environment he set his play in, and 2) how we [the designers] can bring that environment to the stage" (Payne 126). Therefore, it is imperative that the designer learn to examine the script, to derive its intent, and to make rational connections between that intent and the design concept. The text itself is the primary source upon which the design concept is based; hence, effective dialogue with the text is an invaluable tool for the designer. In another comment to the survey, Macias echoes the importance of the actual text to the design student:

> I am more and more convinced that what is most important when teaching design at the undergraduate level is the development of a sensitivity to the text, and a freedom to explore the dramatic values of the text in [relation to] whatever visual medium the student is currently working, rather than to dwell on the established principles of design.

The interpretation of plays presents a certain difficulty in that "...contrary to human communication outside the theatre where an impetus always precedes speech...the pages of a script contain only the results of an impetus..." The designer, therefore, must be able to look beyond the written word in order to analyze and understand the feelings and ensuing needs of the characters in relation to the space and shape of the stage environment (Payne 125-6). Morgan and

Saxton refer to this process as "Reflection...through which the students are taken out of the action of the plot and into the action of the theme" (36). Through this reflection, the designer accumulates information upon which the design concept can be built. This knowledge, in turn, will aid the designer in justifying and communicating the design concept to other members of the production crew.

Design provides unique opportunities to develop higher-level thinking skills such as analysis, synthesis, and evaluation. "Analysis of plot structure, delineation of character, recognition of theme and purpose, understanding of current issues all require and refine complex critical thinking skills" (Kotter 16). Writing provides a visible medium by which designers can practice these thinking skills. The practical benefits of writing are most accurately outlined as follows:

> Writing is thinking made tangible, thinking that can be examined because it is on the page and not in the head, invisible floating around. Writing is thinking that can be stopped and tinkered with. It is a way of holding thought still long enough to examine its structures, its possibilities, its flaws. The road to clearer understanding is traveled on paper. It is through an attempt to find words for ourselves in which to express related ideas that we often discover what we think. (Gage in Tierney, et al. 136)

The practice of writing throughout the learning process encourages students to sort their responses and to think independently. For instance, writing done prior to group discussions will enable students to form and strengthen individual responses before being swayed by others' opinions. The use of journals and logs are invaluable tools in aiding students to "...understand new material, ask relevant questions, clarify concepts, and elaborate ideas" (Bland and Koppel 59). Journal or log entries require students to engage in thinking about a lesson or a particular concept of that lesson. In this aspect, journals and logs are legitimate teaching tools. Writing in these mediums encourages the use of and development of language and thinking skills. Journals and logs also provide a method for students to collect and organize ideas and information. Furthermore, teachers have found that journal and/or log entries "...help students prepare for class discussions, study for examinations, understand reading assignments, and write critical papers" by promoting a better understanding of "...what they know, what they don't know, and what they want to know" (Ferguson 274-5). Even if the teacher does not require a final product, the value of journals and logs cannot be overlooked because "writing is thinking" (Bland and Koppel 59). In relation to design, Steve Carignan, the technical director at the University of Maine, responded to the survey with his belief that both writing and discussion are of value when "...used to organize and gather input and material which is synthesized

in the creative process."

Ferguson notes some helpful guidelines for assigning journals or logs:

1. Explain the purpose of the journal or log.
2. Suggest the use of loose-leaf notebooks to aid in organizing entries.
3. Allot a few minutes of class time for writing short entries (teacher participation will add value).
4. Don't grade entries, but count them for points.
5. Skim entries and provide brief responses to those that are of special interest to you.
6. In order to encourage students to review and synthesize entries, periodically request that they add page numbers, titles for entries, a table of contents, and an evaluative conclusion. (276)

On the whole, writing is perhaps the most effective strategy to encourage the development of thinking and language skills while, at the same time, engaging students in the learning process. In addition to benefiting students, writing also provides the teacher with a visual record of the students' levels of understanding of the subject matter. This record allows the teacher to target specific areas which are unclear or misunderstood. Another effective strategy for developing thinking and language skills is cooperative learning which is discussed in the following section.

THOUGHT

O MESSENGER, art thou the king,
or I?
Thou dalliest outside the palace gate
Till on thine idle armor lie the late
And heavey dews: the morn's bright,
scornful eye
Reminds thee; then, in subtle
mockery,
Thou smilest at the window where I
wait,
Who bade thee ride for life. In
empty state
My days go on, while false hours
prophesy
Thy quick return; at last, in sad
despair,
I cease to bid thee, leave thee free
as air;
When lo, thou stand'st before me
glad and fleet,
And lay'st undreamed-of treasures at my feet.
Ah! messenger, thy royal blood to
buy,
I am too poor. Thou art the king,
not I. (H.H. in Emerson 91)

IV

Cooperative Learning in the Design Workshop

In this particular context, the term "workshop" means: a classroom structure that provides a secure atmosphere that is conducive to a free flow of information and exchange of ideas that creates a common frame of reference; it encourages active participation from each member which, in turn, promotes the development of language and thinking skills. In short, the design workshop provides an effective learning environment for the designer. The most beneficial way of building a workshop environment is by incorporating cooperative learning into the curriculum.

Cooperative learning is a broad term that encompasses learning activities which engages groups of students in collaborative efforts which result in increased individual levels of learning. These group activities are especially profitable in fostering thinking skills because each member of the group becomes a source of input from a different perspective; the exposure to these various perspectives requires students to analyze, synthesize, and evaluate their own ideas in comparison to those of other group members (Davidson and O'Leary 32). Moreover, group participation fosters communication among students and between students and the teacher; thus, an opportunity is provided to practice and develop language skills. This group interaction encourages the development of thinking skills as group members work together to "...clarify objectives, identify goals, identify sources of informa-

tion , [and] provide a meaningful way for making choices and taking action" (Borchardt 7).

Smith borrows from S.P. Norris' "Synthesis of Research on Critical Thinking" in order to demonstrate the relationship between critical thinking and cooperative learning:

> If we use Norris' definition of critical thinking--deciding rationally what to do or what to believe--we can see the relationship between cooperative learning activities and the kinds of thinking that would develop among members of the cooperative team. "What is our goal? Is this information important? Why is my opinion not as good as yours?"...their interaction naturally leads them to decide what to do and what to believe. (76)

Unfortunately, "The status quo regards collaboration as cheating and learning as a solitary, competitive enterprise" (Atwell 37). Competition focuses upon extrinsic rewards which, in some situations, fosters unhealthy psychological effects. This prospect would be very damaging to any student, but design students are especially vulnerable due to the extreme personal nature of the design concept. Any action that demeans a designer's concept, such as awarding extrinsic rewards to another designer's concept, will create doubt over one's own creative abilities, and it may lead to hostility between group members. An effective cooperative environment, then, is one which discourages competition and encourages mutuality. This type of environment focuses on group dis-

cussions and individual intrinsic rewards in relation to tasks (Damon and Phelps 12-13). It is an environment in which individuals supplement their own learning by taking into consideration the ideas and opinions of others. Consequently, there will develop an eagerness to share ideas which will eventually outweigh competitiveness.

A major factor in the successful employment of cooperative learning is the willingness of the teacher to release some of his or her control over the teaching process and share the responsibility of learning with the students. When the students actively share in the responsibility of their own learning "...a dramatic release of creative potential can occur for both [teacher and students]" (Davidson and O'Leary 33). In taking responsibility for their own learning, students develop thinking skills that they can apply in all areas whenever situations require problem-solving abilities (Smith 76). Furthermore, the teacher is freed to interact with students rather than being a mere lecturer who simply feeds them information. Each member of the classroom--students and teacher--becomes actively engaged in the learning process.

One of the most common methods of implementing cooperative learning is through group discussion. Group discussion builds a synergistic understanding of the material under study, which--at the same time--promotes an increased understanding of individual ideas and beliefs. In other words, "...the group understanding is a collective and shared one...

Hence each of the group members learned more than he or she would have by 'going it alone'" (Schoenfeld 71,76). The group provides students a frame of reference for testing the validity of their individual theories through expression, response, and comparison. That is, "...[a] student's learning cannot be understood in isolation from the group context" (Webb, "Peer Interaction" 36).

Group discussion also naturally provides opportunities to improve language skills due to the fact that group members must communicate with one another. Through articulation of ideas and beliefs, thinking skills are employed and developed. Payne utilizes language as a tool to develop thinking skills by asking his design students to use words that contain visual clues in an effort to describe their individual design concepts to the group. Initially, their descriptions are very abstract and general due to their lack of appreciation for the exercise. However, as they are required to be more precise in their descriptions, they find that they can develop a sharper focus in conveying their meanings to others. The designer "...has to think about what he is thinking about," and it follows that "...his own understanding gains depth when he tries harder to make his feelings clear to others" (117). Webb makes the same observation:

> ...when an explanation given to a team-mate [or another group member] is not successful...the helper [or speaker] is forced to try to formulate the explanation in new or different ways. This

> may include using different language...generating new or different examples, [and] linking examples to...prior knowledge...All of these activities will likely expand and solidify the helper's [or speaker's] understanding of the material." ("Peer Interaction" 29-30)

Effective group communication skills are essential to designers in order to facilitate successful production meetings. For instance, when responding to the issue of cooperative learning, Caldwell described an extensive group discussion among the design teams at the Alabama Shakespeare Festival. Prior to their arrival at the theatre, the designers will have communicated with the director by phone or through letters in order to gain knowledge of the director's basic concepts for the play. After their arrival, the design team and director spend one day in large and small group discussions in order to share individual responses to the play. The following day, "...the entire group reassembles to summarize the conclusions/decisions/discoveries of the previous day and to chart the work to come." The team then disperses to develop their designs, but they remain in contact with each other by mail. As Caldwell says, "We send lots of letters and drawings back and forth" (2). The success of group projects such as Caldwell has described relies heavily upon the effective use of spoken and written language skills. The development of these skills in design students will be an asset throughout their careers.

Further examination of successful group discussions in the workshop identifies five major factors that are pertinent: one, receptivity; two, tentativeness; three, rigor; four, cooperation; and five, suitable literature. All students' responses and perceptions must be welcomed and given consideration in order to produce a receptive atmosphere. This nonthreatening environment will encourage students to express tentative responses in order to build upon them. The discussion, however, cannot proceed without the willingness, or rigor, to utilize and develop thinking skills. The group must also cooperate in order to provide each other with the trust and respect that builds a receptive, productive atmosphere. Finally, the literature must provide substance that is worthy of reflection in order to generate thinking (Probst 24-6). Borchardt provides a very detailed description of successful group work in the drama classroom that embraces these factors:

> By actively participating in the step-by-step group decision making strategy students recognize that both critical and creative thinking are necessary in the performing arts [including design], and they are made aware of the problem solving process. This is guided by a series of instructions and feedbacks...There is a mutual give-and-take while identifying problems, generating ideas backed by facts, assumptions, and opinions. (12)

Many of the same principles of group discussion are found

in collaborative learning exercises. Collaborative exercises, however, compound the need for effective communication skills due to the fact that students are required to work together on the same problem in an effort to reach a mutually acceptable solution. The two major strengths of collaboration are "...reciprocal feedback, and frequent sharing of ideas." Due to the shared responsibility of reaching a consensus, the students are supportive of each other's efforts and creative risk-taking ceases to be a threat: "...mistakes become amusing rather than personally threatening, and difficulties become challenging rather than intimidating." Students willingly draw from one another's perspectives in order to build a common concept. Thus, "The strength of peer collaboration...lies mainly in fostering the acquisition of basic conceptual insights. Such insight often resists direct instruction..." (Damon and Phelps 13-14).

When questioned about the benefits of collaborative learning in the design workshop, one student responded to the survey by stating that a collaborative design project between designers near the beginning of the semester might aid in increasing communication as well as reducing the number of withdrawals from the class. Since the actual design is a deeply personal vision, collaboration between students within the same area of design could result in a combative atmosphere as each designer adamantly opposes loss of individual creative expression. While the potential for a combative atmosphere exists between directors and designers, the creative expres-

sion is not as openly at risk because the participants are melding knowledge and experiences from two different realms which complement each other. There is also the fact that even though collaborators work together to solve a mutual problem, each is still held responsible for individual assignments. The collaborative effort between like-designers would ultimately result in a design concept that becomes a conglomeration of various design concepts and ownership of the assignment is lost. On the other hand, directors and designers are free to do their own work within their own realms after reaching a consensus. In short, directors and designers tend to share a mutual respect for the special talents of their respective domains and use those talents to enhance each other's work.

The role of teachers in the design workshop is not one of passivity simply because the students share in the responsibility of their own learning. On the contrary, teachers' roles in the workshop expand from being mere lecturers to also being active sources of information, observers of student interaction, and facilitators of the thinking process --all without taking away the students' responsibilities;

> The teacher's function is to find those approaches which will be divergent and open...watching for the moment when the task, dilemma, or problem assumes an intrinsic importance of its own and she can release the responsibility for the drama to her students. For the more power they assume,

the more language experiences they will have." (Morgan and Saxton 36)

Therefore, the strategies applied in the workshop must engage students in the processes of "...talking through their ideas and constantly assessing their own thinking" (Bland and Koppel 59). The following guidelines will aid teachers in creating a successful workshop:

1. Take advantage of the receptive atmosphere to promote listening as well as expression.
2. Offer means for finding answers and solving problems.
3. Develop questions and comments that will provide clues which will stimulate responses, but leave the ultimate responsibility with the students.
4. Challenge students by requiring them to support their ideas and beliefs.
5. Be an objective observer who gives advice when it is requested. (Morgan and Saxton 37-9)

In general, it is the ultimate role of the teacher to manipulate language in an effort to motivate students to think for themselves. The workshop, then:

> ...allows students to participate in thinking rather than merely accept the thinking done by the instructor; it requires discussion of facts, assumptions, opinions; it provides a way of recognizing alternatives and patterns; it facilitates decision making; it calls for action. (Borchardt 3)

The role of the teacher in creating this effective workshop atmosphere is one of almost unfathomable responsibility. This is due to the fact that effective teaching is paradoxical in nature: it is the responsibility of the teacher to motivate students to learn; yet, only the student can learn to learn.

> ...teaching is a very special art, sharing with only two other arts--agriculture and medicine--an exceptionally important characteristic. A doctor may do many things for his patient, but in the final analysis it is the patient himself who must get well--grow in health. The farmer does many things for his plants and animals, but in the final analysis it is they that must grow in size and excellence. Similarly, although the teacher may help his student in many ways, it is the student himself who must do the learning. (Adler and Van Doren 13)

Conclusion

The described methods of using language to develop the thinking skills of design students directly satisfy four of the nine common principles of the RE:LEARNING concept. First of all, the general effort to develop thinking skills meets the primary principle of intellectual focus which suggests that schools teach students to use their minds well. Secondly, this principle is expanded under the heading of simple goals which declares that program design should be based upon the

intellectual and imaginative powers and competencies that students need instead of expounding the virtues of traditional approaches to teaching subject matter. The third principle reflected in the language approach to teaching design is the concept of the "student-as-worker" in which the teacher ceases to be a "deliverer-of-instructional-services" and becomes a coach in provoking students to learn how to learn. Finally, and maybe most importantly, the atmosphere of a successful workshop presents an attitude that is nonthreatening in which achievement, trust, and decency are expected and provided (Coalition of Essential Schools).

It is essential to remember that learning is a process. In other words, learning is a series of gradual developments which results from the expression, analysis, and alteration or refinement of one's thoughts and ideas. As individuals continually progress through this process, they learn to use their thinking skills to make decisions and solve problems. Language use is the most effective means for promoting the development of these thinking skills; the effective use of language depends upon individuals' abilities to clarify their own meaning. Individuals who successfully learn how to learn are true intellectuals who possess the capacity for rational thought; are able to study, reflect upon, and speculate about those thoughts; and engage in activities that require the expression of those thoughts. Consequently, the design student who makes effective use of the learning opportunities afforded by the use of language is a true intellectual.

QUESTIONINGS

HATH this world, without me
wrought,
Other substance than my thought?
Lives it by my sense alone,
Or by essence of its own,
Will its life, with mine begun,
Cease to be when that is done,
Or another consciousness
With the selfsame forms impress?

Doth yon fire-ball, poised in air,
Hang by my permission there?
Are the clouds that wander by
But the offspring of mine eye,
Born with every glance I cast,
Perishing when that is past?
And those thousand, thousand eyes,
Scattered through the twinkling
skies,
Do they draw their life from mine,
Or, of their own beauty shine?

Now I close my eyes, my ears,
And creation disappears;
Yet if I but speak the word,
All creation is restored.

Or--more wonderful--within,
New creations do begin;
Hues more bright and forms more
rare,
Than reality doth wear,
Flash across my inward sense,
Born of the mind's omnipotence.

Soul! that all informest, say!
Shall these glories pass away?
Will those planets cease to blaze
When these eyes no longer gaze?
And the life of things be o'er,
When these pulses beat no more?

Thought! that in me works and
lives,--
Life to all things living gives,--
Art thou not thyself, perchance,
But the universe in trance?
A reflection inly flung
By that world thou fanciedst sprung
From thyself,--thyself a dream,--
Of the world's thinking thou the
theme?

Be it thus, or be thy birth
From a source above the earth,--
Be thou matter, be thou mind,

In thee alone myself I find,
And through thee alone, for me,
Hath this world reality.
Therefore, in thee will I live,
To thee all myself will give,
Losing still, that I may find
This bounded self in boundless mind.

(F.H. Hedge in Emerson)

Final Survey Results

In evaluating the results of my survey, several trends were preeminent. First of all, the emphasis placed upon group discussion was very significant. Of the instructor responses received, 100% stated that they held group discussions regarding design projects and they also acted as facilitators of the discussions. In addition, 100% of these instructors also observed that their students did seek feedback from them and their classmates outside of class time. Of these students, 93% replied that they engaged in discussion with their instructor; but the percentage dropped to 82% in regards to their classmates. Student responses showed that 93% openly shared their ideas and opinions with classmates and their instructor; additionally 91% valued the ideas and criticisms of their classmates and instructor.

The overall results of the use of writing in the design process were favorable. Students reported that they used writing in various forms including notes and formal papers in order to remain focused and organized, but 16% did feel that writing has no useful connection with the art of design. These students reported that they preferred working strictly with the visualized images in their imaginations or with models. However, 69% of the students who responded admitted to the use of writing in the design process, and 84% of those agreed that writing is a useful tool in developing design concepts. Due to the apparent reluctance to engage in writing, I expected most of the writing to occur after the design was drafted. However,

only 16% of the students reported this trend, while 35% reported to have done a majority of their writing before drafting, and 49% did a majority of their writing throughout drafting their designs. The positive effects of writing was indicated by 76% of the student responses that admit to revision of their original design concepts during the process of writing. The instructors who were surveyed responded that 86% did require a design concept paper, but only 33% of those perceived the students' papers to be adequate. When evaluating the projects, 66% of the instructors who require papers place equal emphasis on the process and the product; 17% place emphasis on the process; and 17%, on the product. In addition, only 17% of the instructors penalized students for grammatical errors, and none penalized students for not meeting the required length. Although all of the instructors surveyed reported an appreciation for writing in the design process, only 43% actually engage in writing when developing their own designs.

In conclusion, I believe that there is a growing trend toward the use of writing in the teaching of stage lighting and set design. This is probably due to the growing movement to implement writing across the curriculum at all levels. For example, Lynn Lockrow of Auburn University reports that "Auburn via a new curricula core (at the university level) all course work is urged to be based in or around writing..." Unfortunately, I do not believe that the potential benefits of the writing process is fully appreciated. In regards to cooperative learning, it is evident that communication among students

and between the students and the instructor is highly valued. Looking back, however, I wish that I had used the survey also to inquire into other forms of cooperative learning. At any rate, I am quite pleased with the responses received.

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